DELTA Geophysics Inc.

GEOPHYSICAL INVESTIGATION REPORT

SITE LOCATION:

52-98 Dickson Street & 41-99 Garvies Point Road,
Glen Cove, New York

PREPARED FOR:

PW Grosser
630 Johnson Avenue, Suite 7
Bohemia, New York 11716

PREPARED BY:

Frank Guld
Delta Geophysics Inc.
738 Front Street
Catasauqua, Pennsylvania 18032

April 6, 2014

Delta Geophysics, Inc. (Delta) is pleased to provide the results of the geophysical survey conducted at 52-98 Dickson Street & 41-99 Garvies Point Road, Glen Cove, New York.

1.0 INTRODUCTION

On April 2nd, 2015 Delta Geophysics personnel performed a limited geophysical investigation at 52-98 Dickson Street & 41-99 Garvies Point Road, Glen Cove, New York. The subject property consists of undeveloped, vacant land with numerous areas containing construction debris and equipment. The area of interest was all accessible areas within the client specified locations. Subsurface conditions were unknown at the time of survey.

2.0 SCOPE OF WORK

The survey was conducted to locate and mark all underground utilities in the surrounding area of the proposed drilling activities. A secondary objective was to investigate the subsurface for anomalies consistent with USTs, former excavations, and any other subsurface obstructions.

3.0 METHODOLOGY

Selection of survey equipment is dependent site conditions and project objectives. For this project the Senior Geophysicist utilized the following equipment to survey the area of concern:

- Geophysical Survey Systems Inc. SIR-3000 cart-mounted Ground Penetrating Radar (GPR) unit with a 400 Mhz antenna and a 2.0 GHz antenna for concrete scanning.
- Geonics EM-61 Mark II time domain metal detector.
- Fisher Scientific TW-6 magnetic locator.
- Radiodetection RD7000 precision utility locator.

Ground penetrating radar (commonly called GPR) is a geophysical method that has been developed over the past thirty years for shallow, high-resolution, subsurface investigations of the earth. GPR uses high frequency pulsed electromagnetic waves (generally 10 MHz to 1,000 MHz) to acquire subsurface information. Energy is propagated downward into the ground and is reflected back to the surface from boundaries at which there are electrical property contrasts. GPR is a method that is commonly used for environmental, engineering, archeological, and other shallow investigations.

The GSSI SIR-3000 GPR can accept a wide variety of antennas which provide various depths of penetration and levels of resolution. The 400 MHz antenna can achieve depths of penetration up to about 20 feet, but this depth may be greatly reduced due to site-specific conditions. Signal penetration decreases with increased soil conductivity. Conductive materials attenuate or absorb the GPR signal. As depth increases the return signal becomes weaker. Penetration is the greatest in unsaturated sands and fine gravels. Clayey, highly saline or saturated soils, areas covered by steel reinforced concrete, foundry slag, of other highly conductive materials significantly reduces GPR depth of penetration.

The GPR was configured to transmit to a depth of approximately 10 feet below the subsurface, but actual signal penetration was approximately 3-4 feet below ground surface (bgs). The limiting factor was signal attenuation from near surface soils.

The GSSI SIR-3000 GPR can accept a wide variety of antennas which provide various depths of penetration and levels of resolution. The 2 GHz antenna can achieve depths of penetration up to about 12 inches, but this depth may be greatly reduced due to site-specific conditions. Signal penetration decreases with increased subsurface conductivity. Conductive materials attenuate or absorb the GPR signal. As depth increases the return signal becomes weaker. Penetration is the greatest in older well cured concrete. Newly poured cement, or cements with some admixtures can greatly reduce the depth of penetration.

The GPR was configured to transmit to a depth of approximately 12 inches below the subsurface, but actual signal penetration was approximately 10. The limiting factor was signal attenuation from the concrete present at the site.

The electromagnetic (EM) method uses the principle of electromagnetic induction to measure the variability of electrical conductivity of subsurface materials. The large EM response to metal makes this technique particularly well suited to identifying buried metal objects such as underground storage tanks, buried drums, pipelines, reinforced building foundations, or other metal components of buried structures. It is, however, equally sensitive to metal objects on the ground surface, and it is important to take careful field notes that indicate the position of surface metal to avoid misinterpretation. Instruments of this type are more sensitive to near surface features i.e reinforced concrete and this fact may sometimes mask features underneath.

The EM-61 is used to detect both ferrous and non-ferrous metals buried in the upper 8 feet of the subsurface. The EM-61 responses are recorded and displayed by an integrated data logger as two-channel information. The bottom channel is more sensitive to metallic objects in the shallow (upper few feet) subsurface, and the differential response is more sensitive to metal objects from 3 to 8 feet below ground surface. Additionally, data can be collected in passive mode. An audible tone is emitted while the EM-61 is used in passive mode, but no data is collected. This audible tone is emitted when the EM-61 is moved over any metallic objects in the subsurface.

The TW-6 is designed to find pipes, cables and other metallic objects such as underground storage tanks. One surveyor can carry both the transmitter and receiver together, making it ideally suited for exploration type searches of ferrous metal masses. Metal detectors of this type operate by generating a magnetic field at the transmitter which causes metallic objects in the subsurface to generate a secondary magnetic field. The induced secondary field is detected by the receiver which generates an audible tone equal to the strength of the secondary field.

The RD7000 precision utility locator uses radio emission to trace the location of metal bearing utilities. This radio emission can be active or passive. Active tracing requires the attachment of a radio transmitter to the utility, passive tracing uses radio emissions that are present on the utility. Underground electrical utilities typically emit radio signals that this device can detect.

4.0 SURVEY FINDINGS

The survey area was examined with RD7000 for potential subsurface utilities then surveyed with GPR and EM for other potential anomalies. All detected utilities were located, marked, and conveyed to client representative.

Utility Survey

Delta personnel located the following utilities: gas, storm drain, and an unknown pipeline. The gas service is located just inside the curb line and trends parallel along the entire frontage of the subject property. A storm drain is located along the rear fence line of the property between an on-site manhole and a manhole located in the south corner of the property. Additionally, along the rear fence line is an unknown pipeline located with GPR. This pipe line is located within the incline of the soil berm. This line was traced to an end point, at which the survey was limited due to construction debris and other obstructions. Delta suggested moving proposed soil boring locations away from the rear property boundary.

EM-61 Survey

The EM-61 survey was completed in all accessible areas within the client specified survey area. One anomalous feature of elevated conductivity was detected adjacent to a highly saturated portion of the property. Delta cannot be definitive that this is a subsurface detection, or interference from the saturated soil zone. The EM data also detected two anomalies consistent with concrete footings or foundations from the previous improvements. No other anomalies of concern were observed. The EM-61 results are depicted on the provided conductivity data plot map.

5.0 SURVEY LIMITATIONS

GPR depth of penetration was limited to approximately 3-4 feet bgs. The limiting factor was due to soil and conductive subsurface materials. Surface metallic objects within the survey area also influenced the data recorded with the EM. Debris piles and metal frames in the silt fence limited the survey coverage with the EM-61. No other significant limitations were observed during the survey.

6.0 WARRANTIES AND DISCLAIMER

As with any geophysical method, it must be stressed that caution be used during any excavation or intrusive testing in proximity to any anomalies indicated in this report. In addition, the absence of detected signatures does not preclude the possibility that targets may exist. To the extent the client desires more definitive conclusions than are warranted by the currently available facts; it is specifically Delta's intent that the conclusions stated herein will be intended as guidance.

This report is based upon the application of scientific principles and professional judgment to certain facts with resultant subjective interpretations. Professional judgments expressed herein are based on the facts currently available within the limit or scope of work, budget and schedule. Delta represents that the services were performed in a manner consistent with currently accepted professional practices employed by geophysical/geological consultants under similar circumstances. No other representations to Client, express or implied, and no warranty or guarantee is included or intended in this agreement, or in any report, document, or otherwise.

This report was prepared pursuant to the contract Delta has with the Client. That contractual relationship included an exchange of information about the property that was unique and between Delta and its client and serves as the basis upon which this report was prepared. Because of the importance of the understandings between Delta and its client, reliance or any use of this report by anyone other than the Client, for whom it was prepared, is prohibited and therefore not foreseeable to Delta.

Reliance or use by any such third party without explicit authorization in the report does not make said third party a third party beneficiary to Delta's contract with the Client. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at the third party's risk. For the same reasons, no warranties or representations, expressed or implied in this report, are made to any such third party.